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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,351	06/10/2005	Marc Rabarot	124253	3764
25944 7590 03/06/2009 OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850				
EXAMINER				
JACKSON, MONIQUE R				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
03/06/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/538,351

**Applicant(s)**

RABAROT ET AL.

**Examiner**

Monique R. Jackson

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12, 13, 15 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12, 13, 15 and 17-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-089)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. The amendment filed 11/26/08 has been entered. Claims 14 and 16 have been canceled. Claims 12, 13, 15, and 17-22 are pending in the application. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 103***

2. Claims 12, 13, 15 and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyagawa et al for generally the reasons recited in the prior office action and restated below.

3. Miyagawa et al teach a method of producing a patterned structure comprising the steps of forming a first layer of negative photosensitive material formed on a substrate, mask pattern exposing the first layer, forming a second layer of negative photosensitive material on the first photosensitive material layer, mask pattern exposing the second photosensitive layer, and developing the first and second layers of photosensitive material; wherein the negative photosensitive material of the second layer may differ from that of the first layer material (Abstract; Col. 2, lines 49-62; Col. 5, line 51-Col. 8, lines 35; Col. 12.) Miyagawa et al teach that the substrate is composed of glass, ceramics, plastics or metals (Col. 10, lines 13-17.) Miyagawa et al teach that the photosensitive material layers may be composed of ordinary photosensitive resin with negative materials including polymers having an unsaturated double bond in the molecular structure, compounds with epoxy radicals, silicone polymers, and vinylic polymers; wherein specific examples include rubber polymers such as polybutadiene and polyisoprene, cyclized compounds thereof (hence cyclized polyisoprene as claimed), polyesters and polymers including acrylic or methacrylic unsaturated double bonds; wherein the first and

second layers may be formed from the same photosensitive material or different materials (Col. 10, line 39-Col. 11, line 5; Examples.) Miyagawa et al teach that a photopolymerization initiator may be added to the negative materials and the photosensitive layers can be formed by solvent coating with a suitable solvent including organic solvents (Col. 10, lines 39-50; Col. 11, lines 35-62; Col. 12, lines 25-65; Examples.) Miyagawa et al further teach examples that read upon the claimed negative on negative microstructure with a particular example utilizing a first or “adhesive” layer of cyclized polyisoprene as claimed, with a thickness of 20 microns (Examples, particularly Ex. 11.) Though Miyagawa et al teach that the thickness of the layers can be varied based upon the desired properties for a particular end use, Miyagawa et al do not specifically teach the combination of thickness ranges as instantly claimed. However, it would have been obvious to one having ordinary skill in the art to utilize thickness values within the same order of magnitude as taught by Miyagawa et al, utilizing routine experimentation to determine the desired thickness of each layer for a particular end use or microstructure. Though Miyagawa et al teach that the photosensitive layers can be formed by solution coating with a suitable solvent, Miyagawa et al do not specifically teach xylene. However, one having ordinary skill in the art at the time of the invention would have been motivated to utilize any conventional solvent utilized in the art, wherein xylene is an obvious solvent utilized in the art, and Miyagawa et al actually teach xylene as a suitable organic solvent developer for the invention in general. Lastly, though Miyagawa et al teach that the first layer and second layer are patterned successively and then developed simultaneously, one skilled in the art would have recognized that the patterning and developing steps of the two layers could be conducted successively or simultaneously, depending upon the materials selected for each layer and the desired final structure or pattern of the layers,

wherein Miyagawa et al clearly teach that the same or different photosensitive materials can be utilized for each layer.

***Response to Arguments***

4. Applicant's arguments filed 11/26/08 have been fully considered but they are not persuasive. The Applicant argues that Miyagawa fails to teach or suggest the claimed combination of thickness ranges for the two negative resist layers or the benefits resulting therefrom, including how the small thickness of the adhesive layer with respect to the thickness of the photo-patternable layer enables the influence of the geometry of the microstructure and of the nature of the substrate to be eliminated. The Applicant further argues that Miyagawa teaches away from negative resists and does not provide any reason or rationale for one of ordinary skill in the art to fashion a microstructure with a photopatternable layer and an adhesive layer formed from a negative resist on at least one face of a substrate, with the dimensions as recited. First, with regards to Applicant's arguments that Miyagawa "teaches away from negative resists", the Examiner respectfully disagrees and notes that though Miyagawa discloses certain challenges with the use of negative resists in comparison to positive resists, Miyagawa clearly teaches the use of negative resists throughout the specification, and more specifically exemplified by Example 11 and Claims 31-40. Hence, taken as a whole, Miyagawa does not "teach away" from utilizing negative resists. In terms of the thickness of the resist layers, Miyagawa does not specifically limit the thickness of either of the layers, nor does Miyagawa teach that the first layers is thinner than the second layer as in the instant claims. However, Miyagawa does provide examples wherein the second negative resist layer has a thickness within the claimed range and further teaches that the change and control of the design are easily attained since the height of the

channel and openings formed by exposing the resists can be simply and accurately modified by the thickness of the resist film. Therefore, in the absence of a clear showing of criticality or unexpected results with regards to the claimed thickness of the adhesive or first negative resist layer, the Examiner maintains her position that the instant invention would have been obvious over the teachings of Miyagawa given that one skilled in the art at the time of the invention would have been motivated to determine the optimum thickness of each of the resist layers in order to provide the desired microstructure geometry for a particular end use.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R. Jackson whose telephone number is 571-272-1508. The examiner can normally be reached on Mondays-Thursdays, 10:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Monique R Jackson/  
Primary Examiner, Art Unit 1794  
March 2, 2009